

## REMARKS

In response to the above-identified Office Action, Applicants amend the application and seek reconsideration thereof. In this response, Applicants amend claims 1, 4-9, 30, 33-34, 46, 48, 49 and 111-115. Applicants cancel claims 25, 45, 47, 50, 51, 53-71, 74-92 and 95-110. Applicants do not add any new claims. Accordingly, claims 1, 4-9, 30, 33, 34, 46, 48, 49 and 111-115 are pending.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attachment is captioned "Version With Markings To Show Changes Made."

### **I. Claim Objections**

Claims 1, 4-9, 25, 30, 33-51, 53-71, 74-92 and 95-115 stand rejected to for not beginning with an article such as the indefinite article "a" or the definite article "the". The claims have been amended to include an indefinite article or definite article as appropriate. Accordingly, reconsideration and withdrawal of the claims objections are requested.

### **II. Claims Rejected Under 35 U.S.C. § 112**

Claims 1, 4-9, 25, 30, 33-51, 53-71, 74-92 and 95-115 stand rejected under 35 U.S.C. §112, first paragraph, as subject matter which was not described in the specification in such a way to reasonably convey to one skilled in the relevant art that the inventors had possession of the claimed invention when the application was filed. Claims 51, 71 and 92, as well as their dependent claims have been cancelled.

The Examiner states that the claims include the elements of a filler having a specific surface greater than 300 m<sup>2</sup>/g. Claims 1 and 30 have been amended to clarify that the filler exhibits a specific surface greater than 1000 m<sup>2</sup>/g. This is supported in the specification at page 2, lines 4-9. Thus, claims 1 and 30, as well as dependent claims 4, 6, 8, 9, 33, 35, 37-39 and 113-115, as amended, are described in the specification in such a way as to reasonably convey to one of

ordinary skill in the art that the inventors at the time the application was filed had possession of the claimed tension.

### III. Claims Rejected Under 35 U.S.C. § 103

Claims 1, 4, 6, 8, 9, 25, 30, 33, 35, 37-39, 41-53, 55, 57-59, 61-74, 76, 78-80, 82-95, 97, 99-101, 103-110 and 113-115 stand rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,665,442 issued to Anderson, et al. (hereinafter "Anderson"). Claims 51, 71 and 92, as well as their dependent claims have been cancelled.

In order to establish a *prima facie* case of obviousness, the Examiner must show that the cited references combined teach or suggest each of the elements of the claims. In regard to claims 1 and 30, these claims, as amended, include the elements of the product being provided in the form of a film. Anderson does not teach these elements of claim 1. Rather, Anderson teaches a product formed on sheets having a thickness between 0.01 millimeters and 1 centimeter used to form a packaging product for insulation. See Anderson, Col. 19, lines 31-36. One of ordinary skill in the art reading the claim in light of the specification would understand that a film has a thickness less than 0.01 millimeters. See, for example, page 12, lines 7-9 of the specification describing a film having a thickness of approximately 300 micrometers. Thus, Anderson does not teach any product in the form of film as claimed in claim 1.

*claim 1  
doesn't include  
thickness*

Claims 1 and 30 also claim a product with a homogenous structure. Anderson does not teach a product with a homogenous structure. Rather, Anderson teaches a composite product consisting of a mixture of inorganic polymers and fibers. See Anderson, col. 6, line 8, col. 12, lines 1-3. Col. 16, lines 45 and col. 17, lines 20-22. The product taught by Anderson is a fibrillated product due to the presence of fibers in the mixture. Thus, the structure of the product is a discontinuous structure. Therefore, Anderson does not teach a homogenous structure as claimed in claims 1 and 30.

Claims 1 and 30 include the element of a filler having a specific surface greater than 1000 m<sup>2</sup>/g, for example, active charcoal. Anderson does not teach this element of claims 1 and 30.

Rather, Anderson teaches only aggregates where the inorganic filler is silica fume. See Anderson, col. 26, lines 48-60. The size of the silica fume particles contained in the aggregate is of the order of 7-30 nanometers which leads to a specific surface area of 50-400 m<sup>2</sup>/g. See Exhibit A, "Handbook of Fillers," George Wypych, page 132. Thus, Anderson does not teach or suggest at least one filler having a specific surface greater than 1000 m<sup>2</sup>/g.

Claims 1 and 30 include the elements of an open porous structure. Anderson does not teach or suggest these elements of claims 1 and 30. Rather, Anderson teaches a porosity of the packaging product that provides a good insulation. See, for example, Anderson col. 17, lines 31-33, col. 27, lines 57-61. To provide a good insulation, the voids created in the product must essentially be closed voids. Thus, Anderson does not teach an open porous structure.

Claims 1 and 30 include the elements of mean diameter of a plurality of pores being less than 0.5 micrometers. The Examiner states that such a variable would have been recognized by one skilled in the art to control the degree of porosity of the film. However, the Examiner has failed to establish that the mean diameter of pores is a result effective variable. See *In Re Antonie* 559 F.2d 618, 195 USPQ 6 (CCPA 1977). Therefore, the Examiner has failed to establish that the claimed mean diameter of the pores involves only discovering an optimum value of a result effective variable.

Thus, Anderson fails to teach a product in the form of a film that has a homogenous structure, a specific surface of less than 10 m<sup>2</sup>/g, open porosity, a mean diameter of pores being less than 0.5 micrometers, and a specific surface of the fillers being greater than 1000 m<sup>2</sup>/g.

The Examiner has argued that Anderson uses the same materials claimed and thus would inherently possess the same specific surface as that of the material claimed in claims 1 and 30. However, as mentioned above, claims 1 and 30, as amended, include a filler having a specific surface greater than 1000 m<sup>2</sup>/g. The Examiner has not indicated and Applicants have been unable to discern any part of Anderson that teaches such a filler. Thus, Anderson does not teach a

composite product having a filler as claimed and therefore would not inherently possess the same specific surface as that of the Applicant.

Likewise, the Examiner argues that Anderson teaches a composite product having the same materials as claimed and thus would have a BET specific surface and a tensile strength within the ranges claimed. However, as noted above, the invention claimed is not made with the same material (Anderson does not teach a filler having claim specific surface greater than  $1000 \text{ m}^2/\text{g}$ ). Further, claims 1-30 do not define the porous composite product by the preparation process. Thus, the process of preparation taught by Anderson has not been shown to teach the claimed characteristics of claim 1 and 30 would be the result of its preparation process.

As noted above, the Examiner has argued that Anderson teaches the mean diameter of a pore size as an optimal and workable range of a result effective variable whose discovery involves only routine skill in the art. However, the invention consists of the combination of multiple parameters which are not disclosed by Anderson and finding this combination would not be a simple task of discovering an optimum or workable range for a single parameter. Rather, it would involve finding a correct proportion of materials and material types that result in the set of claimed parameters. Further, one of ordinary skill in the art would not find that Anderson is analogous art because the claimed invention relates to a polymeric material with improved performance when used for electrochemical storage of energy. In particular, for use in capacitors or batteries. Therefore, one of ordinary skill in the art would not have seen Anderson as analogous art because Anderson is concerned only with the manufacturing of containers.

The invention provides a porous composite product with a homogenous structure in the form of a film exhibiting BET specific surface greater than  $10 \text{ m}^2/\text{g}$  and being formed of a polymeric material and 20 percent by weight of at least one filler the product being obtained by extrusion and having an open porous structure wherein the at least one filler exhibits a specific surface greater than  $1000 \text{ m}^2/\text{g}$  and the mean diameter of a plurality of pores is less than 0.5 micrometers. The claimed product is suitable for use as an electrode in a capacitor. Its high specific surface allows a good diffusion of an electrolyte into the product. The inclusion of fillers

being greater than 20 percent by weight allows a primary product to be obtained with a very high proportion of active mass and optimal accessibility to this mass. The accessibility to active mass is obtained due to the combination of a high preparation of fillers having a high specific surface greater than 1000 m<sup>2</sup>/g. The open porous structure and the mean diameter of the pores being less than 0.5 micrometers contributes to the accessibility to the active mass while sharing a homogenous structure of the product. As a result, when used as an electrode and capacitor, the product of the invention allows charging and discharging of a large amount of electric charge.

Thus, Anderson does not teach a combined set of characteristics as claimed in claims 1 and 30 because it provides no motivation for the set of characteristics. Rather, Anderson relates to a packaging product where this set of characteristics is unimportant. Thus, the Examiner has failed to Examiner the claim as a whole.

Further, when the voids are created in the product of Anderson the voids must be closed voids. Thus, these voids do not contribute to the high specific surface of the product taught by Anderson. Moreover, the product taught by Anderson contains fibers which are inevitably orientated when the product is extruded. See col. 14, lines 11-16 and col. 38, lines 56-59 of Anderson. Consequently, Anderson does not teach a product with a homogenous structure.

Therefore, Anderson does not teach or suggest each of the elements of claims 1 and 30. Accordingly, reconsideration and withdrawal of the obviousness rejection of these claims are requested.

Claims 4-9, 33-44, 46, 48, 49, 111-115 depend from independent claims 1 and 30 and incorporate the limitations thereof. Thus, at least for the reasons mentioned in regard to claims 1 and 30, these claims are not obvious over Anderson. Accordingly, reconsideration and withdrawal of the obviousness rejection of these claims are requested.

## CONCLUSION

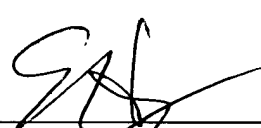
In view of the foregoing, it is believed that all claims now pending, namely claims 1, 4-9, 30, 33, 34, 46, 48, 49, 111-115 patentably define the subject invention over the prior art of record, and are in condition for allowance and such action is earnestly solicited at the earliest possible date. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207 3800.

Respectfully submitted,

BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN LLP

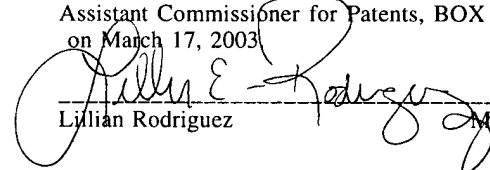
Dated: 3/17, 2003

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### **CERTIFICATE OF MAILING:**

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail No **EL651827843US** addressed to: Assistant Commissioner for Patents, BOX CPA, Washington, D.C. 20231, on March 17, 2003.

  
Lillian Rodriguez

3-17-03  
March 17, 2003

**VERSION WITH MARKINGS TO SHOW CHANGES MADE**  
**IN THE CLAIMS**

Please amend the claims as follows:

1. (Amended) The porous composite product with a homogeneous structure, the product being provided in the form of a film, exhibiting a [high] “BET” specific surface greater than 10 m<sup>2</sup>/g and being formed of a polymeric material and at least 20% by weight of at least one filler, the said product [is capable of] being obtained by extrusion and having an open porous structure, wherein the at least one filler exhibits a specific surface greater than [300 m<sup>2</sup>/g] 1000 m<sup>2</sup>/g and the mean diameter of a plurality of pores is less than 0.5 μm.
  
4. (Amended) The composite product according to claim 1, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of polyolefins, acrylic polymers, aromatic polymers, polyamides, polyimides, vinyl polymers with a high proportion of ethyl monomers.
  
5. (Amended) The composite product according to claim 4, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of polyethylenes, polypropylenes, ethylene-α-olefin copolymers.
  
6. (Amended) The composite product according to claim 4, wherein the thermoplastic elastomers, soluble in polar organic solvents or water, which remain after the implementation of the manufacturing process are chosen from polyethers, poly(vinyl alcohol)s or ethylene-vinyl alcohol copolymers.

7. (Amended) The composite product according to claim 6, wherein the composite product is 10 to 40% by weight of the polyolefin material, 5 to 40% by weight of the polyether, and the remainder is the at least one filler.

8. (Amended) The composite product according to claim 1, wherein the filler is chosen from fillers with a high specific surface.

9. (Amended) The composite product according to claim 8, wherein the at least one filler exhibits a specific surface of between 300 and 3000m<sup>2</sup>/g.

30. (Amended) A porous composite product with a homogeneous structure, the product being provided in the form of a film, the product being formed of a polymeric material, the product exhibiting a [high] specific surface greater than 10m<sup>2</sup>/g and comprising between 30% and 85% by weight of at least one filler and the product being [capable of being] obtained by extrusion and having an open porous structure, wherein the at least one filler exhibits a specific surface greater than [300 m<sup>2</sup>/g] 1000m<sup>2</sup>/g and the mean diameter of a plurality of pores is less than 0.5 μm.

33. (Amended) The composite product according to claim 30, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of polyolefins, acrylic polymers, aromatic polymers, polyamides, polyimides, vinyl polymers with a high proportion of ethyl monomers.

34. (Amended) The composite product according to claim 33, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of fluorinated polyolefins.



46. (Amended) The composite product according to claim 45, wherein the product exhibits a “BET” specific surface of greater than 20m<sup>2</sup>/g.

48. (Amended) The composite product according to claim [47] 30, wherein the product in the form of a film exhibits a tensile strength at break of greater than 4MPa.

49. (Amended) The composite product according to claim 48, wherein the product exhibits a tensile strength at break of greater than 6MPa.

111. (Amended) The composite product according to claim 4, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of fluorinated polyolefins.

112. (Amended) The composite product according to claim 1, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of thermoplastic polymers or elastomers, soluble in polar organic solvents or water, which remain after the implementation of the manufacturing process.

113. (Amended) The composite product according to claim 4, wherein the polymeric material comprises elastomers or polymers chosen from the group consisting of thermoplastic polymers or elastomers, soluble in polar organic solvents or water, which remain after the implementation of the manufacturing process.

114. (Amended) The composite product according to claim 6, wherein the thermoplastic elastomers, soluble in polar organic solvents or water, which remain after the implementation of the manufacturing process are polyethers with a molecular mass of between 200,000 and 1,000,000.

115. (Amended) The composite product according to claim 8, wherein the at least one filler is chosen from fillers composed of active charcoal, inorganic particles or metallic particles.